

Code breakers are figures of mystery in Washington, but one woman expert's work can be told

Key Woman of the T-Men

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IN THE Army and Navy there are small picked groups of officers — and in the Coast Guard Division of the Treasury, one woman — who consider it a matter of course to find their desks each morning piled with weird documents composed of apparently unrelated numerals and hieroglyphics. Instruments on the teletype principle in the room may begin sputtering seemingly mad scrambles of letters, and somewhere in the heart of the gibbering confusion the code officer knows there is a coherent secret message and that he is expected to "break" it — and to break it right now.

A good code breaker, or cryptanalyst, must be able to decipher messages taken from wire or radio within a few hours, because it is rarely a matter of more than that until a code message under modern conditions produces the action intended. The job requires the deductive and analytical qualities of a super-picture-puzzle wizard and a bridge expert, combined with a specialized knowledge of all that the world has learned about code construction in 2500 years. Today

in Washington cryptanalysis is as distinctly a profession as psychoanalysis or plastic surgery.

But when it comes to questions of who the code breakers are, what materials they work with and what their objectives are — Washington draws the curtain of secrecy. State Department officials admit that they have codes for communication with our ambassadors. But the possibility that they have ever had, except in wartime, any means of investigating the code secrets of foreign powers the higher-ups treat as undiscussible. The boss of the Army's cryptanalysts, Lieutenant-Colonel William F. Friedman, head of the Signal Intelligence Service, will admit only that a few bright young officers play a constant war game with each other of code devising and code breaking.

Occasionally a legend filters down from the Signal Intelligence Service. There is the report, for instance, that a young decoding expert with no prior knowledge of hieroglyphic language scripts "broke" the famous Rosetta stone mystery in eight hours. The schol-

ars who first did it took 23 years. Then there is the story of an inventor — himself a cryptanalyst of high amateur standing — who demonstrated a new language scrambling machine. Into it had gone several years' time, a new system of cryptic writing, and \$1,000,000. Yet the Washington experts began reading back his messages within 30 minutes.

If, however, you inquire too deeply about such activities, you may be politely reminded that publishing certain types of national defense secrets is punishable by a term in the federal penitentiaries. The Army and Navy, in other words, are keeping themselves constantly on their toes for a war in which secrecy of communication will be of no less strategic value than gun power and transport.

There is, in fact, just one place in the government where a few facts about code breaking can be obtained. That is in the Treasury Department. When one of the Treasury Department's enforcement agencies gets the scent of a new international enterprise in smuggling, dope running, white slavery or illicit immigrant-running, there is one unofficial order that sticks in every agent's mind: "Get some of the gang's correspondence and send for Mrs. Friedman."

For in this type of warfare Elizabeth Smith Friedman is charged

with the same responsibilities with which her husband, Col. Friedman, would be charged in the event of war — the solution of the enemy's secret communications. More than that, she was responsible for awakening Col. Friedman's interest in cryptanalytical science in the first place.

In 1916 Elizabeth Smith, fresh from Wooster College and looking for a job, was introduced to a wealthy enthusiast who owned the greatest collection of literature on cryptic writing in America. George Fabyan possessed fighting convictions that Francis Bacon, the Elizabethan philosopher, had written the works of William Shakespeare. He was constantly on the lookout for young scholars who would go into his Riverbank laboratory and spend their lives running down the cipher in which Bacon had said so. Elizabeth Smith had specialized in Elizabethan literature, and Fabyan gave her a job.

She made two uses of her opportunity. She convinced William Friedman, a brilliant young geneticist in the Fabyan scientific laboratories, that he could have more fun solving the Baconian mystery than charting the family trees of fruit flies. Then, during the 1916-17 winter, the young couple worked out for themselves the basic principles of code-breaking science.

They learned, for instance, that the first thing to look for in a scramble of letters or hieroglyphic ci-

phers is repetition. In English there are all the final *e* and *s* words, the adverbs ending in *ly*, the *ed* ending on the past tenses. There are the diphthongs *tb*, *cb*, and *wb*, the *q* with its *u* satellite, and so on. No system of cryptic writing that is intended to be read can avoid these repetitions. Even if the symbol for *a* is *q* in the first line, *423* in the second line, and an originally devised cipher character in the third, there must be a rhythm in the shifts of symbols which eventually will betray *a* to the expert cryptanalyst. And deciphering the first half dozen letters is half the battle.

In the spring of 1917, war came on, the Friedmans were married, and the Fabyan laboratory was commandeered by the government as a training school in military cryptography.

Commissioned a lieutenant, Friedman was sent to France. Mrs. Friedman stayed on at Riverbank. Squads of young officers with a high I.Q. rating were sent to her for training. By the end of the war she probably knew as much about military code making and breaking as a division signal corps headquarters.

In the early 1920's the Treasury Department's criminal-catching agencies began piling up with odds and ends of mysterious messages. The big crime syndicates were taking to code, and the T-men were without means of deciphering them. Suddenly it was realized that some

of the best talent in the United States was going to waste under the modish hat of a young matron who by now had informed Mr. Fabyan that if Bacon wrote Shakespeare, he had not troubled to put a cipher in his works to tell about it.

So in 1923 the Coast Guard chiefs sent for Mrs. Friedman and appointed her "key woman" of code-breaking activities on the crime front. She is entrusted with more secrets of the crime world and of federal detection activities than any woman in history. Gang bosses have gone to penitentiaries as a result of her expert efforts. Syndicates have been broken up and millions of dollars' worth of outlaw business has been interrupted.

Much of her activity is necessarily involved in mystery as deep as that surrounding the Army and Navy code experts. Yet there are definitely "closed" cases on which her work is a matter of public record. There was the case, for instance, of the twin brothers Israel and Juda Ezra, under surveillance for years by Treasury operatives as San Francisco's canniest pair of dope runners. They had everything on them but the clinching evidence.

One night early in 1933 the operatives gained possession of a Shanghai-postmarked letter addressed to the Ezras. It was a confusing gibberish of words like "wyrras," "wyvas" and "wysats"

mingled together with a mad jumble of unrelated numbers. Within an hour it was flashed over the radio to the Key Woman.

It was a double-code system, with a constant shifting of symbols, but within a few hours Mrs. Friedman had nosed out her basic clues and solved it. The real message in the "wyr-ra-wyvas" correspondence was to this effect:

Our shipment goes today. It consists of 520 tins of smoking opium and 20 tins sample, 70 oz. cocaine, 70 oz. morphine, 40 oz. heroin. . . .

It was signed in code by two Chinese known to the League of Nations as pillars of the export trade in illicit narcotics.

A few days later another code letter to the Ezras was intercepted. It instructed them, Mrs. Friedman's skill revealed, to look for the containers of narcotics in eight numbered drums of a shipment of tung oil to arrive in San Francisco on the Japanese freighter *Asama Maru*. The customs men and the narcotic division operatives pounced, when the *Asama Maru* made port, and found the narcotics. At last the physical connection of the Ezras with the dope traffic had been established.

Largely as a result of Mrs. Friedman's evidence, the Ezras pleaded guilty and were given the maximum sentence of 12 years for narcotic smuggling. "Twelve years," as a Pacific Coast columnist wrote,

"in which to try to devise a code that a woman couldn't break."

Still more important, from the standpoint of Uncle Sam's diplomatic embarrassments, was Mrs. Friedman's help in solving the mystery in the celebrated *I'm Alone* case. The ship was built in Canada for the liquor trade, and, so far as her record is known, operated exclusively for that purpose. On March 23, 1929, a Coast Guard cutter's zealous crew sighted her near the Louisiana coast in a raging norther. When she refused to honor the "heave to and be searched" signals, they chased her miles beyond the limits of maritime law jurisdiction, and sank her with her Canadian flag still waving. The crew were rescued, but for the loss of the vessel and its cargo the Canadian government filed a claim against the United States of \$365,000.

The Dominion claim was based on the presumption that vessel and cargo were Canadian-owned. American officials contended that the *I'm Alone* belonged to New Yorkers. If this could be established, the scandal of the sinking could be cut down to a mere flag insult, which could be adjusted between friendly powers by a formal apology and small cash indemnity.

Underworld gossip of a dozen rum ports turned up hints of a "Dan" and a "Big Jim" somewhere. But who "Dan" and "Jim" were, or where they had vanished,

appeared increasingly elusive, as the Treasury detectives followed one dead-end clue after another.

Then one morning, Elizabeth Friedman walked into the office of Edson Shamhart, supervising customs agent in New Orleans, with translations of 23 code messages subpoenaed from telegraph companies. All came from Belize, British Honduras, and were addressed to "Harforan," an unregistered code address in New York. They dealt with shipping dates and destinations, with brands and prices of prohibited liquors. The only difficulty was that there was not enough data in the messages to indicate what ship was being loaded.

But when Mrs. Friedman dumped her translations on Shamhart's desk, the information fitted perfectly with what the agents had known for nearly two years of the *I'm Alone* movements. The caller for "Harforan" messages at New York telegraph offices was quickly traced, and within a week Dan Hogan, half owner of the *I'm Alone*, was captured.

Marvin Clark, the "Big Jim" of the *I'm Alone* legend, stayed at large two years longer, but long before his capture, Hogan and his gang were safely stowed away in federal penitentiaries, and the American ownership of the *I'm Alone* fully established. When Chief Justice Duff of the Canadian Supreme Court and Justice Van Devanter of the American high tribunal sat

as an arbitration court in the winter of 1934-5, they agreed that all the United States owed for the *I'm Alone* indiscretion was \$50,000 for the flag insult and the destruction of Canadian seamen's property.

The professional code breakers seldom talk of these exciting crime chases in the background of their labors. Mostly, when they talk of their work at all, it is in terms of concentration. Their proficiency is based on a discipline of mind, all the code breakers agree, and not on talents reserved to mental prodigies. It is a good deal, in fact, like a cultivated "gift" for languages. A man who knows a hundred code systems is not likely to be stumped entirely by the hundred and first for more than a few hours. There is a professional proverb to the effect that you can "break" any code if the maker of it doesn't know more about codes than you do.

Yet the effects of an eight-hour day at a code-breaker's normal nervous tension are not to be laughed off. The Friedmans have a household rule that code problems are not to be mentioned out of office hours. And their retirement plan is to solve the mystery of the language of the Etruscans or the Mayas. No professional code breaker ever wants to get away from cryptanalysis entirely, but it would be restful, they say, to unravel a code some day on which nothing more nerve-wracking depended than the approval of scholars.